



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/594,764

09/29/2006

Hitoshi Hata

297119US0PCT

6726

22850

7590

04/01/2011

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

OLADAPO, TAIWO

ART UNIT

PAPER NUMBER

1771

NOTIFICATION DATE

DELIVERY MODE

04/01/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/594,764	Applicant(s) HATA ET AL.	
	Examiner TAIWO OLADAPO	Art Unit 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,6-12,15 and 17-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,6-12,15 and 17-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment dated 02/15/2011 has been considered and entered for the record. The amendments do not overcome the previous rejections which are hereby maintained. Newly added claims 27, 28 are rejected below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

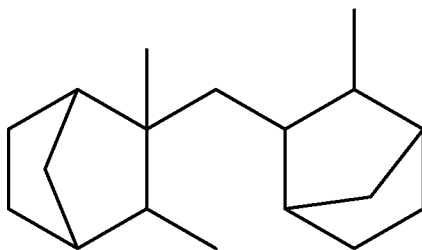
Art Unit: 1771

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 6, 8 – 12, 19, 21, 23, 26, are rejected under 35 U.S.C. 103(a) as being unpatentable over Tipton (US 6,372,696) in view of Tsubouchi et al. (WO 2003031964A1) and in view of Watts et al. (US 6,337,309). A US equivalent (US 2005/0090739) for Tsubouchi et al. is used for the rejections.

6. In regards to claims 1, 26, Tipton teaches lubricating automotive traction fluids such as in automatic or continuously variable transmissions (CVT) (column 1 lines 4 - 17) comprising a base fluid of a type 1 or a type 2 or mixtures, wherein the base fluid of type 2 can be polymers such as dimers, trimers, tetramers of norbornanes (column 3 lines 8 – 22).

Tipton teaches that the lubricant has kinematic viscosities at 40°C in the range that meets the limitations of claim 1 (see column 19 & 20 table). Tipton also teaches the lubricant contains phosphorus compounds, including esters (column 11 lines 35-42). Tipton does not teach phosphoric esters containing a thioether bond. Tipton also does not particularly recite 2-methyl-3-methyl-2-[(3-methylbicyclo[2.2.1] hepta-2-yl)methyl]bicyclo[2.2.1]heptane, which has the structure;



2-methyl-3-methyl-2-[(3-methylbicyclo[2.2.1]hepta-2-yl)methyl]bicyclo[2.2.1]heptane

Tsubouchi teaches fluids for transmission medium similar to Tipton [0015]. Tsubouchi teaches the fluids can comprise 2-methyl-3-methyl-2[(3-methylbicyclo[2,2,1]hept-2-

Art Unit: 1771

yl)methyl]bicycle-[2,2,1]heptane which is the compound of the structure claimed [0022].

Therefore, baseoils comprising the norbornanes of the structure recited in Tsubouchi and Tipton combined would possess the cohesive energy densities recited in the claims.

Watts teaches a CVT fluid similar to the invention of Tipton [0001]. Watts teaches that the fluid contains phosphorus esters of a structure I having hydrocarbyl groups R and R₁ which contains thioether bonds (column 5 lines 45 – 59). The hydrocarbyl groups contain from alkyl or aryl groups, wherein the alkyl group can be decyl which is a C₁₀ group (column 6 lines 13 – 26). The compound meets the limitations of the phosphorus ester compound of claim 4, wherein A is hydrogen and R⁷, R⁸ are decyl groups having thioether bonds. Watts teaches the phosphorus ester can be present in a lubricant at from 0.01 to 5% by mass which is equivalent to 100ppm to 50,000ppm (column 6 lines 32 – 35). In Example P-1-A, the phosphorus ester is prepared and the final product comprises 8.4% phosphorus, which amounts to from 8ppm to 4000ppm of phosphorus in the lubricant and overlaps the limitation of claim 1 (column 6 lines 42 – 59).

In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

It would have been obvious for one of ordinary skill in the art at the time of the invention to have used the thioether bond-containing phosphite ester of Watts as the phosphorus compound in the lubricating oil of Tipton, and to have used the polymers of Tsubouchi as base fluids in the lubricant of Tipton, as they are suitably used in transmission lubricants.

7. In regards to claim 6, 11, Tipton, Tsubouchi and Watts combined teach the lubricant having overbased calcium sulfonate (Tipton, column 21 table). Tipton teaches that the

Art Unit: 1771

overbased compounds have base values (mg KOH/g) of preferably 100 and up to preferably 400 (column 8 lines 28 – 41).

8. In regards to claim 8 – 10, 12, Tipton, Tsubouchi and Watts combined teach the lubricating oil composition for continuously variable transmission comprising the limitations of claim 1 as previously stated. The fluid is therefore suitable for the intended use as metallic belt, traction drive, or chain type CVT lubricant according to the instant invention.

The claims are product claims that are drawn to a composition of matter and therefore statements of intended use do not carry any patentable weight. The reference teaches the compositional limitations of claims 8 – 10.

9. In regards to claims 19, 21, 23, Tipton, Tsubouchi and Watts combined teach the lubricating oil composition. Tipton teaches the lubricant can comprises additives such as detergents including sulfonates, phenates and carboxylates, i.e., calcium overbased sulfonate detergent, which is present at from 0.05 up to 5% of the composition; viscosity modifier in amounts of up to 10% by weight of the composition (column 13 lines 7 – 20), and phosphorus compounds such as thiophosphates (column 14 lines 5 – 15). The amount of viscosity modifier present meets the limitations of component (E) of the claim. Watts teaches detergent is present as calcium phenate which provides less than 500 ppm of calcium to the composition. It will be obvious to use similar sulfonates detergents depositing similar calcium contents to the oil. The calcium content overlaps the limitation of component (C) of the claim.

10. **Claims 20, 22, 24, 25, are rejected under 35 U.S.C. 103(a) as being unpatentable over Tipton (US 6,372,696) in view of Tsubouchi et al. (WO 2003031964A1) in view of Watts et al. (US 6,337,309) and further in view of Sowerby et al. (US 2002/0183210)**

Art Unit: 1771

11. In regards to claims 20, 22, 24, 25, Tipton, Tsubouchi and Watts combined teach the lubricating oil composition wherein the composition has ingredients in amounts meeting the limitations of component (C) and (E) and comprises thiophosphates but do not particularly recite the amount of thiophosphates in the composition. Sowerby teaches traction fluids for lubricating transmissions similar to Tipton (title, claim 17). Sowerby teaches the fluid can comprise zinc phosphate salts such as zinc dithiophosphates which is present in the lubricating oil in amounts of from 0.05 to 1 weight percent of the lubricant composition which overlaps the limitations of component D [0035, 0037, and 0047]. It would have been obvious for one of ordinary skill in the art at the time of the invention to have use the amount of thiophosphates taught by Sowerby in the lubricant of Tipton, Tsubouchi and Watts combined, as they are suitable amounts for use in traction fluids.

12. Claims 4, 15, 17, 18, 27, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tipton (US 6,372,696) in view of Tsubouchi et al. (WO 2003031964A1) in view of Watts et al. (US 6,337,309) and further in view of Hata et al. (US 2002/0055441)

13. In regards to claims 4, 15, 17, 18, Tipton, Tsubouchi and Watts combined teach the composition wherein the base oils are dimers, trimers and tetramers of norbonanes having the cohesive energy density of the claims. The combined references do not particularly recite the phosphate compounds of claims.

Hata is added to teach CVT lubricants similar to Tipton [0002]. Hata teaches phosphates having a structure of formula (I) or (I-a) which comprises R groups that are 1 to 18 carbon atoms and can comprise one or more sulfur atoms which meets the limitation of the structure recited in the claim [0026, 0034]. The compounds are mono or di-(octylthioethyl)hydrogen phosphate,

Art Unit: 1771

mono or di(hexylthioethyl)hydrogen phosphate, mono or di-(dodecylthioethyl)hydrogen phosphate, mono or di-(hexadecylthioethyl)hydrogen phosphate etc. which meets the limitations of the compounds of claim 18. The phosphates of Tipton also meets the hydrogen phosphate structure of claim 17 which requires that the R groups be hydrocarbon having 1 to 18 carbons and having a thioether bond. Tipton also teaches phosphite esters meeting the limitations of claim 15 [0037, (I-b)]. The fluid comprises a phosphorus content of from 100 to 600 ppm contributed by the phosphate which is within the claimed limitation [0028].

It would have been obvious for one of ordinary skill in the art at the time of the invention to have used the phosphates of Hata in the composition of Tipton, Tsubouchi and Watts combined, as Hata teaches they are suitable for use in transmission lubricants.

14. In regards to claims 27, 28, Tipton, Tsubouchi, Watts and Hata combined teach the composition. Hata teaches the composition can comprise phosphates or phosphites which contribute between 100 to 600 ppm of phosphorus to the composition [0026 – 0028]. The phosphites include di-(octylthioethyl) hydrogen phosphite [0039] which meets the claimed limitations.

15. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tipton (US 6,372,696) in view of Tsubouchi et al. (WO 2003031964A1) in view of Watts et al. (US 6,337,309) and further in view of Conary et al. (US 6,096,691)

16. In regards to claim 7, Tipton and Watts teach the lubricating oil composition for continuously variable transmissions. Tipton, Tsubouchi and Watts combined teach that the lubricating oil containing optional additives such as antiwear (Tipton, column 21 line 25) but does not particularly recite a sulfur antiwear.

Art Unit: 1771

Conary teaches gear oil additives and lubricants containing them (Title) similar to the invention of Tipton, Tsubouchi and Watts combined. Conary teaches that the additives can be, i.e. sulfur antiwear (column 1 line 35; column 17 lines 10 – 12).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have used sulfur antiwear additives in the composition according to Tipton, Tsubouchi and Watts combined, as Conary teaches it is a suitable antiwear additive for transmission or gear lubricating oils.

Response to Arguments

17. Applicant's arguments have been considered but they are not persuasive.

18. The applicants argue the references of Tipton and Tsubouchi cannot be combined because Tipton relates to traction fluid formulations for use in lubricating mechanical power transmitting equipment while Tsubouchi relates to media for transmitting ultrasonic waves which are two different activities and one of ordinary skill in the art would not look to the fluid of Tsubouchi to modify the fluid of Tipton. The argument is not persuasive. Tipton teaches base fluids used in transmission that comprise norbornanes and/or norbornenes (column 3 lines 20 – 21). Tsubouchi is added to teach norbornane/norbornene base fluids used in a transmission medium. Similar fluids including oils, esters, and polymers are generally used as base fluids in a wide range of analogous or non analogous media for lubrication, while the properties of the lubricant in different media would vary based on specific performance additives and amounts used in each specific composition. Tsubouchi is only added to teach particular type of norbornane/norbornene useful as a base fluid.

Art Unit: 1771

19. The applicants allege superior unexpected results. The inventive examples are not commensurate in scope with the claimed invention. While the inventive examples comprising di-octylthioethyl hydrogen phosphites, borated succinimides and overbased calcium sulfonates in specific amounts, the claims recite phosphorus compounds can be phosphoric or phosphorus esters present at from 50 to 600 ppm in the amount of phosphorus thus comprising a vast number of phosphorus compounds that can be used and in much broader amounts in the composition. The applicants do not show criticality of the invention at the claimed endpoints of 50 and 600 ppm of phosphorus.

20. The allegation of superiority is not persuasive. While Inventive Ex 3. shows friction coefficient of from 0.118 dropping from 0.133, the friction coefficient of Comparative Ex 4. was 0.112 dropping from 0.123 after 60 minutes. The friction coefficients are very close and the alleged superiority is not obvious. Therefore applicants have not demonstrated superior results sufficient to rebut the case of obviousness.

Conclusion

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

Art Unit: 1771

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAIWO OLADAPO whose telephone number is (571)270-3723. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571)272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TO

/Glenn A Caldarola/
Supervisory Patent Examiner, Art Unit
1771